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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,116	01/24/2006	Akihisa Inoue	OGOSH44USA	3700

270 7590 04/30/2007

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EXAMINER	
ZHU, WEIPING	
ART UNIT	**PAPER NUMBER**
1742	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/566,116	INOUE ET AL.	
	Examiner	Art Unit	
	Weiping Zhu	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/23/2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3,14 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,3,14 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 2, 3, 14 and 20 are currently under examination wherein the claims 14 and 20 have been amended in response to the comment made by the examiner in the Office action mailed on December 4, 2006. In response to the restriction requirements in the Office action mailed on December 4, 2006, method claims 26-33 have been canceled and species claims 15-19 and 21-25 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected invention. Claims 2 and 3 are generic. The elections during the telephonic restriction requirements from the examiner on October 31, 2006 and November 13, 2006 were confirmed in applicants' reply filed on March 16, 2007.

Status of Previous Rejections

2. The previous rejections of claims 2, 3, 14 and 20 under 35 U.S.C. 103(a) as being unpatentable over Mathaudhu et al. (Material Research Society Symposium Proceeding (MRSSP), Vol. 754 @ 2003, CC3.5.1 to CC3.5.8) in view of Rosenflanz et al. (US Publication: 2003/0126804) and further in view of Gu et al. (MRSSP, Vol. 754 @ 2003, CC7.9.1 to CC7.9.6) are maintained as follows.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 2, 3, 14 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathaudhu et al. (Material Research Society Symposium Proceeding (MRSSP), Vol. 754 @ 2003, CC3.5.1 to CC3.5.8) in view of Rosenflanz et al. (US Publication: 2003/0126804) and further in view of Gu et al. (MRSSP, Vol. 754 @ 2003, CC7.9.1 to CC7.9.6) as stated in the Office action of December 4, 2006.

The amendments in claims 14 and 20 in response to the comment made by the examiner in the Office action of December 4, 2006 are acknowledged and they do not change the scope of the claims..

Response to Arguments

4. The applicants' arguments filed on March 16, 2007 have been fully considered but they are not persuasive.

First, the applicants argue that Mathaudhu et al. fail to provide any teaching to one of ordinary skill in the art that their material might be useful in constructing a sputtering target and similarly Rosenflanz et al. ('804) also fail to one of ordinary skill in the art that a material of sintered gas atomized powder could be used to produce a sputtering target. In response, the examiner notes that it would have been obvious to one of ordinary skill in the art that any material of desired composition and structure could be formed into a sputtering target for depositing a thin film or a coating on substrates of complex shapes. As stated in the Office action of December 4, 2006 (last paragraph, page 5), Rosenflanz et al. ('804) disclose amorphous materials formed by gas atomization can be formed into sputtering targets (paragraph [0083], page 8). The material of Mathaudhu et al. is an amorphous material as claimed in the instant

application. Therefore, the motivation to combine Mathaudhu et al. and Rosenflanz et al. ('804) as stated in the Office action of December 4, 2006 (1st paragraph, page 6) is proper.

Second, the applicants argue that Gu et al. clearly fail to disclose anything relative to sputtering target or materials of any kind obtained by sintering gas atomized powder; the bulk metallic glass of Gu et al. is neither produced according to the process disclosed by Mathaudhu et al. nor that required by the claims of the instant application; and that one of ordinary skill in the art would have had no reason for combining Gu et al. with Mathaudhu et al.. In response, the examiner notes that the rejections of the sputtering target and process limitations rely on Mathaudhu et al. in view of Rosenflanz et al. ('804). It is also noted that claim 2 is a product-by-process claim. Even through product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. Gu et al. disclose an amorphous metallic glass (abstract), which reasonably appear to be only slightly different than the amorphous metallic glass of Mathaudhu et al. in view of Rosenflanz et al. ('804) and the respective claimed amorphous metallic glass in the instant claims. See MPEP 2113. A combination of Gu et al. with Mathaudhu et al. in view of Rosenflanz et al. ('804) is eminently fair and acceptable.

Third, the applicants argue that Gu et al. is only concerned with bending specimens an shear bands formed due to the bending; Mathaudhu et al. provides no disclosure at all with respect to bending specimens or to shear bands; and accordingly the particle size in the "region where the shear bands are closely spaced" as disclosed

by Gu et al. is completely irrelevant to Mathaudhu et al., because the material of Mathaudhu et al. does not disclose shear bands. In response, the examiner notes the material of Mathaudhu et al. does disclose shear bands (1st paragraph and the caption of Figure 6, page CC3.5.6). Gu et al. disclose that the characteristic feature of plastic deformation of metallic glass at room temperature is shear localization; the majority of shear deformation occurs within a few narrow regions (sear bands) with only limited global plastic strain; and macroscopic plastic strain can be remarkably increased by controlling the formation, distribution and propagation of shear bands in the metallic glass (1st paragraph, Introduction, page CC7.9.1). Gu et al. further disclose that portion of the specimen with a significant population of nanocrystals show a smaller separation between shear bands (abstract). It would have been obvious to one of ordinary skill in the art that the particle size of the metallic glass of Mathaudhu et al. is related to the features of the shear bands present. Therefore, the particle size in the "region where the shear bands are closely spaced" as disclosed by Gu et al. is completely relevant to Mathaudhu et al.

Fourth, the applicants argue that the ductility is not a property of concern with respect to the sputtering targets of the instant application. In response, examiner notes that the rejection was based on the prior art's broad disclosure rather than preferred embodiments. See MPEP 2123. Mathaudhu et al. disclose that bulk metallic glasses are attractive for many structural applications due to their high tensile strength, hardness and resistance to both corrosion and wear (Introduction, page CC3.5.1). It would have

been obvious to one of ordinary skill in the art that a high ductility would be required for some structural applications.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WZ

4/23/2007

ROY KING
SUPERVISORY PATENT EXAMINER
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